

crystals according to claim 11, i.e. maltitol crystals being bipyramidal in form, and having certain maltitol and maltotriitol contents. Figures 1, 2 and 3 of the specification show photographs by scanning electron microscope of such crystals bipyramidal in form.

It is submitted that the Caboche patent does not describe such a particular form of maltitol crystals.

In fact, it is stated in Caboche at Col. 5, lines 13-19, that the structure of the crystalline maltitol composition is essentially porous and honeycombed, and that the particles making up the composition are essentially spherical, lacking sharp edges and composed of a vast number of crystalline microparticles which are agglomerated to each other. This can be seen on figures 1 and 5, which show crystalline compositions according to Caboche consisting of spherical articles without sharp edges (Col. 10, line 1011), possessing a porous and honeycombed structure and containing particles which are composed of crystalline microparticles agglomerated to each other (Col. 10, line 18-21).

There is no indication in the Caboche patent that the crystalline particles making up the composition may be bipyramidal in form. On the contrary, it is stated, Col 5, lines 19-22, that the structure of the Caboche particles differ distinctly from the very angular cubic or parallelepipedal particles obtained in the prior art, for example, using crystallization in water.

It is clear from the figure and the descriptions that the crystalline composition of the instant invention is not anticipated by the Caboche patent. First of all, bipyramidal crystals do have sharp edges. A bipyramidal structure and an essentially spherical and without sharp edge structure cannot be described as being closely related. Additionally, as mentioned in the instant specification, at page 5, lines 16-19, the crystals in compliance with the instant invention are not caked together or arranged in small aggregated clusters but are on the contrary fully dissociated and individualized in relation to each other.

Additionally, as can be seen on the figures (fig. 1 of Caboche where 1 cm represents about 67  $\mu\text{m}$ , and figure 1 of the instant invention where 1 cm represents about 125  $\mu\text{m}$ ), the crystals obtained in Caboche are smaller than the crystals of the instant invention, which are massive.

Furthermore, the process disclosed in example 1 of the Caboche patent is different from the process of the invention. In Caboche, the crystalline composition can be obtained by atomizing a syrup relatively rich in maltitol on a moving pulverulent bed of particles of

crystallized maltitol of a purity at least equal to that of the maltitol syrup (see e.g., Col. 6, lines 33-38). As stated at Col. 8, line 65-Col. 9, line 9, the aim is to obtain a maltitol composition devoid of particles having sharp edges, but on the contrary consisting of particles essentially spherical, without sharp edges and composed of a vast number of crystalline microparticles aggregated with each other. That process is different from the process of the instant invention.

Consequently, nothing in the Caboche patent anticipate the isolation of maltitol crystals bipyramidal in form, nor does it anticipate a process to obtain said crystals of a particular form, nor the fact that the form of the maltitol crystals is a function of the maltotriitol content.

**Claims 15-17 are rejected as being unpatentable over**

**Kataura et al. (EP 741 140) in view of Caboche (US 5,651,829)**

Applicants respectfully traverse this ground for rejection.

Claims 15-17 of the instant invention relate to a manufacturing process of a composition comprising essentially maltitol crystals bipyramidal in form and having certain maltitol and maltotriitol contents. Said composition exhibits certain properties useful for the some of the applications of crystalline maltitol compositions.

Kataura et al. relates to the production of crystalline maltitol using a process which is more economically advantageous than previously used processes. The form or shape of the crystals, and their properties, are not an issue and are not discussed in the document. No indication is given about the importance of the maltitol and maltotriitol contents of the maltitol syrup being crystallized with respect to the form of the obtained crystals. The obtention of a composition comprising essentially maltitol crystals of a specific form, in a reproducible manner, i.e. by controlling the preparation process and in particular the nature and content of the impurities present, is not disclosed in Kataura. The fact that a controlled maltotriitol content leads to one or the other or a mix of the two specific forms is not mentioned either.

As discussed hereinabove, the Caboche patent discloses a crystalline maltitol composition which is essentially porous and honeycombed, and in which the particles making up the composition are essentially spherical, lacking sharp edges and composed of a vast number of crystalline microparticles which are agglomerated to each other. This specific structure of the crystalline maltitol composition entails specific properties useful for certain applications. Said composition is said to be an improvement over prior art compositions showing sharp edges.

There is no indication or incentive in either Kataura et al, or Caboche to use a composition as disclosed in Caboche, i.e. used to obtain essentially spherical and devoid of sharp edges particles, and to apply it to the Kataura process, presented as being merely economically advantageous, in order to obtain the particles of a specific and very different and sharp edged shape, i.e. bipyramidal, of the instant invention.

The Assignee thus disagrees with the statement of the Examiner that it would have been obvious to substitute into the Kataura et al. process the crystal as taught by Caboche to obtain a crystalline maltitol composition of bipyramidal form.

Consequently, Kataura et al. does not anticipate the process of the invention, neither by itself nor in view of the Caboche patent.

**Claims 18-32 are rejected as being unpatentable over Devos et al. (US 4,846,139).**

Applicants respectfully traverse this ground for rejection.

Devos describes the preparation of maltitol crystals from maltitol syrups comprising 2.5% to 13% by weight of maltotriitol. The Examiner infers that these may be considered as maltitol syrups comprising at least 4% of maltotriitol, and thus the obtained crystals should have a prismatic form.

As stated in the communication filed June 16, 1999, the assignee would like to stress that the Devos fractions enriched in maltitol comprise also at least 1.5% of other impurities in addition to maltotriitol (Cf. The examples). Such a quantity of various impurities will obviously lead to numerous and non-determinable crystalline forms.

While some of the crystals obtained when using Devos's process may be prismatic in form, nothing in Devos disclosed or suggests to the person skilled in the art that a crystalline maltitol composition comprising essentially a specific crystalline form (bipyramidal or prismatic) of maltitol crystals is obtained in a reproducible manner using a specific starting material comprising a specific amount of a specific impurity.

No indication is given about the importance in the process of both the maltitol and maltotriitol contents, specifically, of the maltitol syrup being crystallized with respect to the form of the obtained crystals. The fact that a controlled maltotriitol content leads to one or the other or a mix of the two specific forms is not mentioned either.

In any case, in Devos, the maltitol syrup rich in maltitol comprises maltitol and polyols

of a DP greater than or equal to 4, the remainder being sorbitol and maltotriitol. This means that sorbitol has to be present. On the contrary, in the instant invention, in the case when there are 94% of maltitol and 4% of maltotriitol, there can be no sorbitol present. Thus, the crystalline composition of the instant invention comprising essentially maltitol crystals being prismatic in form and having a maltitol content equal to 94% and a maltotriitol content of 4% is not anticipated by Devos et al.

In view of the above, it is considered that the application is now in proper form for allowance. Favorable consideration and prompt allowance of these claims are respectfully requested.

If the Examiner has any questions please contact Curtis A. Bell at the telecommunication numbers given below.

Respectfully submitted,

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